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PATENT ABSTRACTS OF JAPAN

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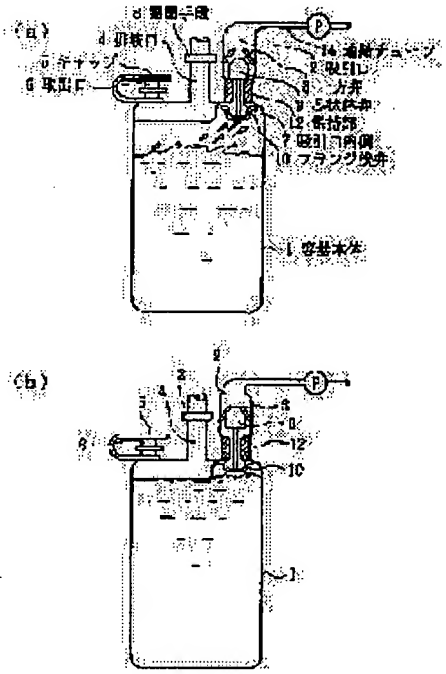
(54) BODILY FLUID SUCTION COLLECTING DEVICE

(57)Abstract:
PURPOSE: To provide a bodily fluid suction collecting device which is free from trouble of the transfer of the body liquid which is suction-collected from a wound part of human body to the suction source (wound part), suitable for carrying, can measure the discharged body liquid quantity with high precision, and possesses superior sanitary performance and operation performance.
CONSTITUTION: At the suction port 2 of a container body 1, an opening/closing unit which has a one-way valve 8 on the suction side and has a valve body which is integrally formed from a core shaped body valve 9 which contact-seals the one-way valve and a flange shaped valve 10 which closely seals a suction port inside 7 is insertion-held in a holding part 12 on the container body side, is arranged.



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CLAIMS

[Claim(s)]
[Claim 1] It is a tool for carrying out attraction fluid collection of the body fluid (effluent), such as evacuated blood liquid from an incision or an operative wound. In the upper part of the body of a container Effluent opening which has a closing motion means for making attraction opening for connecting with an attraction means, and an effluent introduce into a reservoir, And the output port which has the cap for taking out the effluent by which fluid collection was carried out is prepared. The body-fluid suction collection apparatus characterized by arranging in said attraction opening the closing motion unit which made the attaching part carry out insertion maintenance of the valve element which united the flange-like valve which carries out an adhesion seal with the one-way valve prepared in the attraction side and ******** which carries out a contact seal to this one-way valve, and the attraction opening inside.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the portable medical-application suction collection apparatus used in order to aim at adhesion of the organization in a wound cavity while carrying out attraction blowdown of the body fluid (henceforth an effluent), such as an exudate from a body wound cavity, and evacuated blood liquid.
[0002]
[Description of the Prior Art] Using a medical-application suction collection apparatus, in order to carry out attraction blowdown of the body fluid (effluent) discharged from body wound cavities, such as an incision and an operative wound, is well known from the former. In this case, the tube for carrying out blowdown induction of the effluent is inserted into a wound cavity, and is connected to the suction collection apparatus, the negative pressure which made it generate in a suction collection apparatus is accumulated into a suction collection apparatus, and the effluent in a wound cavity is stored.
[0003] The suction collection apparatus of the portable type known until now is divided roughly into the following three kinds by the device in which negative pressure is generated in a container. Namely(1)the thing which decompressed beforehand the rigid interior of a well-closed container called ** vacuum bottle, **(2)Compress an elastic container with elasticity beforehand and decrease content volume.(3)The elastic members (balun etc.) in which expansion contraction is free are made to build in in what generates negative pressure in a container using the elastic recovery force of a container, and ** rigid container, the inside of a rigid container is made to exhaust by expanding this elastic member, and negative pressure is generated in a container according to the force which an elastic member contracts. However, by the 1st type, it has the fatal fault said that a suction force declines rapidly as an effluent is accumulated. Moreover, generally such aspirators for medical use are used, continuing on postoperative two - three days, and about a maximum of the 7th, and although actuation of giving a suction force like repressing or re-expansion during this period is surely needed several times, it is necessary to discard once the effluent which carried out fluid collection by then by the 2nd and 3rd types. In addition, if the actuation which cannot measure the amount of effluents during attraction is mistaken, it has many troubles -- there is a danger that an effluent will flow backwards in a wound cavity.
[0004] As what solves such a trouble, it consists of the 1st room which carries out the attraction reservoir of the exudate (body fluid) from a body wound part, and the 2nd room which generates a suction force according to the shrinkage force of the balun member in which expansion contraction is free established in the rigid container, and the 1st room and the medical-application suction collection apparatus (JP,61-131751,A) which is open for free passage in [the 2nd room] gas negotiation are proposed. Thus, although what divided the reservoir section and the source of attraction into two or more rooms has a use big as it is and an advantage big as it is, since the greatest fault is opening both ** for free passage in gas negotiation, it is a point with a possibility that the body fluid which was dealt with and was stored depending on the direction may shift to ** which has a source of attraction. Moreover, since a bottle is made reverse and performed in many cases when discharging the stored body fluid,

then, body fluid flows into the place which is open for free passage in gas negotiation, and shifts. In this case, the shifting body fluid produces a possibility of becoming the sources of infection, such as hepatitis and an acquired immunode-ficiency syndrome, for those who operate the source of attraction manually, and it is also possible to cause trouble to an attraction function depending on a situation. Moreover, also when it becomes impossible for the amount of liquid-storage to grasp to accuracy by shift of body fluid, it is.

[0005]

[Problem(s) to be Solved by the Invention] This invention body fluid from a body wound part to the 2nd room which becomes a source of attraction from the 1st room which carries out an attraction reservoir, employing the function of elegance efficiently conventionally [above-mentioned] While the amount of effluents can improve [precision] direct reading, without preventing that body fluid shifts through the part which is open for free passage in gas negotiation, and being intentionally careful of shift prevention, when it is sanitary, and it excels in operability and is made especially portable, the validity is in offering the body-fluid suction collection apparatus which can be demonstrated further.

[0006]

[Means for Solving the Problem] This invention is a tool for carrying out attraction fluid collection of the body fluid (effluent), such as evacuated blood liquid from an incision or an operative wound. Namely, in the upper part of the body of a container Effluent opening which has a closing motion means for making attraction opening for connecting with an attraction means, and an effluent introduce into a reservoir, And the output port which has the cap for taking out the effluent by which fluid collection was carried out is prepared. It is the body-fluid suction collection apparatus characterized by arranging in said attraction opening the closing motion unit which made the attaching part carry out insertion maintenance of the valve element which united the flange-like valve which carries out an adhesion seal with the one-way valve prepared in the attraction side and ******** which carries out a contact seal to this one-way valve, and the attraction opening inside.

[0007] Hereafter, the detail of this invention is explained with reference to a drawing. Drawing 1 is drawing showing the process which carries out attraction fluid collection of the body fluid to the structure of the body-fluid suction collection apparatus used as one example of this invention.

[0008] Attraction opening for connecting the body-fluid suction collection apparatus by this invention to an attraction means in the upper part of the body of a container (1) (2), Effluent opening which has a closing motion means (3) for making an effluent introduce into a reservoir (4), The output port (6) which has the cap (5) for taking out the effluent by which fluid collection was carried out is prepared. And to said attraction opening (2) The closing motion unit with which the head consisted of a flange-like valve (10) which can carry out the adhesion seal of the lower part to the attraction opening inside (7) in ******** (9) which can carry out a contact seal to an one-way valve (8) at the body (1) side of a container, and insertion maintenance of the one-way valve (8) was carried out again at the attaching part (12) is arranged in the attraction side.

[0009] Although especially configurations, such as a cylindrical shape, a cube form, and a globular form, are not limited, as for the body of a container (1), it is desirable to make a compact so that it may be easy to carry out a pocket activity. Moreover, although a rigid plastic, glass, etc. are used, in order to check the description of the effluent which carried out fluid collection, an amount, a situation, etc. as the construction material, transparence thru/or a thing translucent at least are desirable, there is toughness which is hard to destroy during activities, such as a pocket walk, and it is required to be lightweight construction material, for example, it is appropriate to use hard PVC resin etc.

[0010] Although especially a configuration is not limited, the construction material has the rubberlike substance or flexible plastics suitable for the one-way valve (8) prepared in attraction opening (2) which has the flexibility which can be opened and closed. This one-way valve (8) is contacted, and in order that ******** (9) which can carry out a seal may fit well with an one-way valve (8) and may raise seal nature, it is more desirable than an one-way valve (8) that it is

hard a little. Moreover, the lower flange-like valve (10) has the attraction opening inside (7), and the configuration and structure which can carry out a contact seal, and its perimeter part is suitable also for using the rubberlike substance or flexible plastics as occasion demands.

[0011] Next, the operation of the body-fluid suction collection apparatus by this invention is described. First, the other end of the drain tube linked to effluent opening (4) is detained in a body wound part, and output port (6) is sealed with a cap (5), and is connected to attraction opening (2) through a connection tube (14) at the attraction means P. If attraction is started, first, by opening a closing motion means (3), an effluent will be attracted from a body wound part and it will flow in a fluid collection apparatus, and as shown in drawing 1 (a), it will be stored in the body of a container (1). By giving the graduation to the wall surface of a container, the amount of fluid collection can be read easily.

[0012] In order to throw away the stored effluent, attraction is stopped, closing and a cap (5) are removed for a closing motion means (3), and an aperture and an effluent are discharged for output port (6). Attraction and fluid collection can be repeatedly presented with the aforementioned procedure.

[0013] Although it is the actuation of a closing motion unit prepared in attraction opening (2), three kinds of work is raised fundamentally. ** of the effluent which stored the 1st at the time of migration (carrying) of the body of a container (1) which is depended for being choppy and which flies prevents jumping into the inlet port of attraction opening (2). it prevents that liquid level pushes up a flange-like valve (10), and makes it stick to the attraction opening inside (7), and an effluent goes into attraction opening when [at which the effluent stored as the 2nd was shown in drawing 1 (b) is not filled] it is alike and becomes near. While a flange-like valve (10) sticks to the attraction opening inside (7) when carrying out near to reverse in case it is made reverse or an effluent is thrown away accidentally [3rd / the / time of carrying], and making it discharge, and carrying out a seal, ******** (9) contacts an one-way valve (8), and a closed ** seal is carried out. Thus, it prevents that the stored effluent shifts to the attraction means P.

[0014] The others which are (1) attraction piping in a hospital, a suction pump, etc. although especially the class of attraction means P is not limited, (2) The attraction implement which the container with elasticity which can be contracted is compressed [implement] beforehand, makes content volume reduce, and generates negative pressure using the elastic recovery force of a container, (3) As shown in drawing 2 , (balun etc. is built in) in in a rigid container (16). [the elastic member (17) in which expansion contraction is free, and] The inside of a rigid container (16) is exhausted using the rubber bulb (18) which equipped vertical ends with the one-way valve, an elastic member (17) is expanded, and the attraction implement (15) which generates a suction force by the contraction can be used. It is desirable to use an attraction implement like ~~after 2 person~~ from a viewpoint referred to as convenient for ~~a cellular phone~~ or handling.

[0015] the latter two carrying

[Effect of the Invention] Since an effluent will be stored into the bag-like object contained in the container if the body-fluid suction collection apparatus of this invention is used

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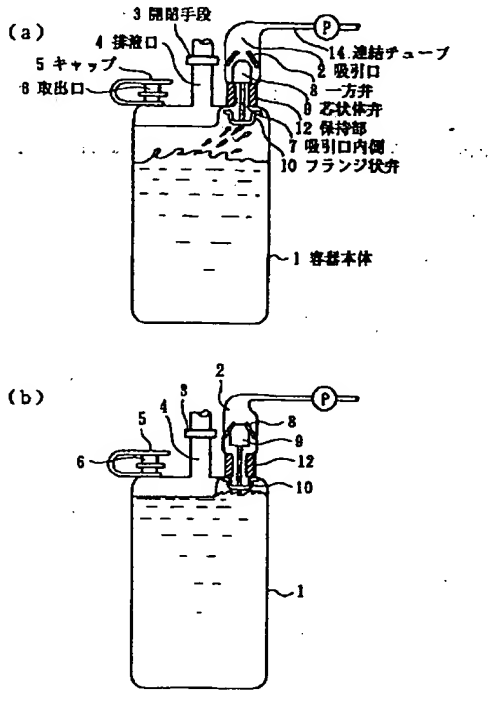
(54)【発明の名称】　体液吸引集液器

(57)【要約】

【目的】　人体創部から吸引、集液された排液が吸引源の方へ移行する恐れがなく、携帯用に適しており、排液量が精度よく測定できて、衛生性、操作性に優れた体液吸引集液器を提供する。

【構成】　容器本体（１）の吸引口（２）に、吸引側に一方弁（８）を設け、容器本体側には前記一方弁に接触シールする芯状体弁（９）と吸引口内側（７）に密着シールするフランジ状弁（１０）とを一体化した弁体を保持部（１２）に挿通保持させた開閉ユニットを配設している。



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【特許請求の範囲】

【請求項１】　切開創もしくは手術創からの排血液等の体液（排液）を吸引集液するための用具であって、容器本体の上部には、吸引手段に接続するための吸引口、排液を貯溜部に導入させるための開閉手段を有する排液口、及び集液された排液を取り出すためのキャップを有する取出口が設けられており、前記吸引口に、吸引側に設けられた一方弁、及び該一方弁に接触シールする芯状体弁と吸引口内側に密着シールするフランジ状弁とを一体化した弁体を保持部に挿通保持させた開閉ユニットを配設したことを特徴とする体液吸引集液器。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、人体創腔からの滲出液、排血液等の体液（以下、排液と言う）を吸引排出すると共に、創腔内組織の密着を図るために使用される携帯可能な医療用吸引集液器に関するものである。

【０００２】

【従来の技術】切開創、手術創など人体創腔からの排出される体液（排液）を吸引排出するために医療用吸引集液器を用いることは、従来からよく知られている。この場合、排液を排出誘導するためのチューブが創腔内に挿入されて吸引集液器に接続されており、吸引集液器内に発生させた陰圧によって創腔内の排液が吸引集液器内に集積、貯溜される。

【０００３】これまで知られている携帯可能なタイプの吸引集液器は、容器内に陰圧を発生させる機構により、次の３種類に大別される。即ち、①真空ビンと呼称される剛性の密閉容器内部を予め減圧したもの、②弾性をもった伸縮自在な容器を予め圧縮して内容積を減少させておき、容器の弾性回復力を利用して容器内に陰圧を発生させるもの、③剛性容器内に膨張収縮自在な弾性部材（バルーン等）を内蔵させ、この弾性部材を膨張させることによって剛性容器内を排気せしめ、弾性部材が収縮する力により容器内に陰圧を発生させるものである。しかしながら、第１のタイプでは排液が集積されるに従って、吸引力が急激に低下すると言う致命的な欠点を有する。また、一般にこのような医療用吸引器は術後２～３日、最大７日程度は継続して使用するもので、この期間中に再圧縮あるいは再膨張のような吸引力を与える操作が必ず数回は必要になるが、第２及び第３のタイプでは、それまでに集液した排液を一度廃棄する必要がある。この他、吸引中に排液量の測定をすることが出来ない、操作を誤ると排液が創腔内に逆流する危険性があるなど多くの問題点を有している。

【０００４】このような問題点を解決するものとして、人体創部からの滲出液（体液）を吸引貯留する第１室と、剛性容器内に設けられた膨張収縮自在なバルーン部材の収縮力によって吸引力を発生させる第２室とから成り、第１室と第２室とは気体流通的に連通している医療

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用吸引集液器（特開昭６１－１３１７５１号公報）が提案されている。このように貯留部と吸引源を２室以上に分けたものは、それなりに大きな効用と利点を有するものであるが、最大の欠点は、両室を気体流通的に連通しているので、取扱い方によっては貯留した体液が吸引源を有する室へ移行する恐れのある点である。また、貯溜した体液を排出する時はボトルを逆さにして行う場合が多いので、その時体液は、気体流通的に連通している所に流入して移行する。この場合移行する体液は、吸引源を手動で操作する者にとっては肝炎やエイズ等の感染源となる恐れを生じ、状況によっては吸引機能に支障を来たすことも有り得る。また、体液の移行によって貯液量が正確に把握出来なくなる場合もある。

【０００５】

【発明が解決しようとする課題】本発明は、上記従来品の機能を生かしつつ、人体創部から体液を吸引貯留する第１室から吸引源となる第２室へ、気体流通的に連通している部位を通して体液が移行するのを防止し、移行防止を意識的に注意することなく排液量が精度良く直読できると共に、衛生的でかつ操作性に優れ、特に携帯用にした場合にその効力が一層発揮できる、体液吸引集液器を提供することにある。

【０００６】

【課題を解決するための手段】即ち本発明は、切開創もしくは手術創からの排血液等の体液（排液）を吸引集液するための用具であって、容器本体の上部には、吸引手段に接続するための吸引口、排液を貯溜部に導入させるための開閉手段を有する排液口、及び集液された排液を取り出すためのキャップを有する取出口が設けられており、前記吸引口に、吸引側に設けられた一方弁、及び該一方弁に接触シールする芯状体弁と吸引口内側に密着シールするフランジ状弁とを一体化した弁体を保持部に挿通保持させた開閉ユニットを配設したことを特徴とする体液吸引集液器である。

【０００７】以下、図面を参照して、本発明の詳細について説明する。図１は、本発明の一実施例となる体液吸引集液器の構造と、体液を吸引集液する過程を示す図である。

【０００８】本発明による体液吸引集液器は、容器本体（１）の上部には吸引手段に接続するための吸引口（２）、排液を貯溜部に導入させるための開閉手段（３）を有する排液口（４）、及び集液された排液を取り出すためのキャップ（５）を有する取出口（６）が設けられており、前記吸引口（２）には、吸引側に一方弁（８）が、また、その容器本体（１）側には頭部が一方弁（８）に接触シール出来る芯状体弁（９）で、下部が吸引口内側（７）に密着シール出来るフランジ状弁（１０）からなり、保持部（１２）に挿通保持された開閉ユニットが配設されている。

【０００９】容器本体（１）は、円筒形、立方形、球形

など形状は特に限定されないが、携帯使用し易いようにコンパクトに仕上げるのが望ましい。また、その材質としては、硬質プラスチック、硝子等が使用されるが、集液した排液の性状、量、状況等を確認するために、透明ないし少なくとも半透明であることが望ましく、携帯歩行など使用中に破壊しにくい強靭性があり、軽量な材質であることが必要で、例えば硬質ＰＶＣ樹脂等を用いるのが適当である。

【００１０】吸引口（２）に設けられた一方弁（８）は、形状は特に限定されないが、その材質は開閉できる柔軟性を有するゴム状物質又は軟質プラスチックが適切である。この一方弁（８）と接触してシール出来る芯状体弁（９）は、一方弁（８）と良くフィットしかつシール性を向上させるために、一方弁（８）より若干硬質であることが好ましい。また、下部のフランジ状弁（１０）は周囲部分が吸引口内側（７）と接触シール出来る形状、構造を有しており、必要によりゴム状物質又は軟質プラスチック等を用いるのも適切である。

【００１１】次に、本発明による体液吸引集液器の使用方法について述べる。先ず、排液口（４）に接続した排液チューブの他端を人体創部に留置し、取出口（６）はキャップ（５）で密封し、吸引口（２）に連結チューブ（１４）を介して吸引手段Ｐに接続する。吸引を開始すると先ず、開閉手段（３）を開放することにより、人体創部から排液が吸引されて集液器内に流入し、図１（ａ）に示したように、容器本体（１）内に貯溜される。容器の壁面に目盛を付しておくことにより、集液量を容易に読み取ることが出来る。

【００１２】貯溜した排液を捨てるには、吸引を停止して開閉手段（３）を閉じ、キャップ（５）をはずして取出口（６）を開き、排液を排出する。前記の手順により繰り返し吸引、集液に供することが出来る。

【００１３】吸引口（２）に設けられた開閉ユニットの作動であるが、基本的には３通りの働きがあげられる。第１は容器本体（１）の移動（持ち運び）時に、貯溜した排液の波立ちによる飛ぶきが吸引口（２）の入口に飛込むのを防止する。第２は、図１（ｂ）に示したように貯溜した排液が満たんに近くなった時、液位がフランジ状弁（１０）を押上げて吸引口内側（７）に密着させ、排液が吸引口に入るのを防止する。第３は持ち運び時誤って逆さにしたり、排液を捨てる際に逆さに近くして排出させる時、フランジ状弁（１０）が吸引口内側（７）に密着してシールすると共に、芯状体弁（９）が一方弁（８）に接触して閉鎖シールする。このようにして貯溜した排液が吸引手段Ｐへ移行するのを防止する。

【００１４】吸引手段Ｐの種類は特に限定しないが、病院内の吸引配管、吸引ポンプ等の他、弾性をもった収縮自在な容器を予め圧縮して内容積を縮少せしめ、容器の弾性回復力を利用して陰圧を発生させる吸引具や、図２に示したように剛性容器（１６）内に膨張収縮自在な弾性部材（１７）（バルーン等）が内蔵され、上下両端に一方向弁を備えたゴム球（１８）を用いて剛性容器（１６）内を排気して弾性部材（１７）を膨張させ、その収縮によって吸引力を発生させる吸引具（１５）等も使用することが出来る。携帯や取扱いに便利と言う観点からは、後２者のような吸引具を使用するのが好ましい。

【００１５】

【発明の効果】本発明の体液吸引集液器を用いれば排液が容器内に収納された袋状物の中に貯溜されるので、移動時や排液を排出する際に容器を逆さにしても、排液が吸引源の方に流出する恐れがなく、しかも使用中は常に集液量の測定を精度良く簡便に行うことができて、特に小型の吸引具と組合せて使用すれば携帯用には便利で、治癒促進が出来て、管理上も簡便で取扱い易い体液吸引集液器である。

【図面の簡単な説明】

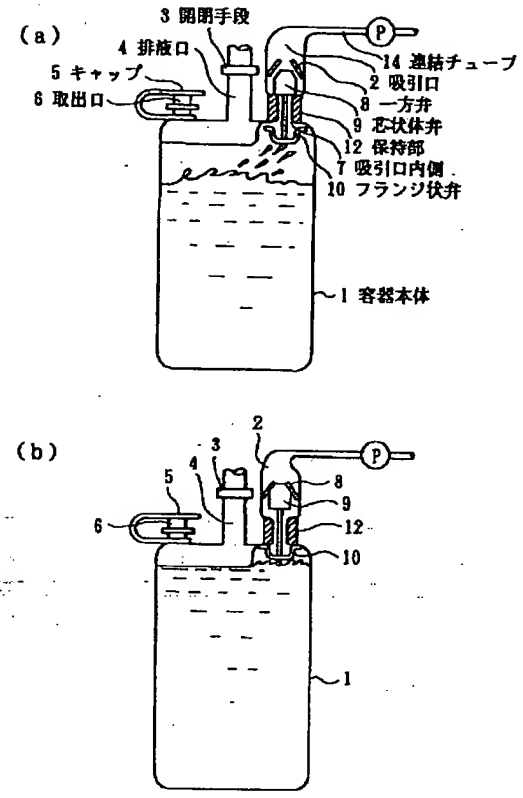
【図１】本発明の一実施例となる体液吸引集液器の構造と、体液を吸引集液する状況を示す図である。

【図２】本発明による体液吸引集液器に、小型の吸引具を組合せた状態を示す斜視図である。

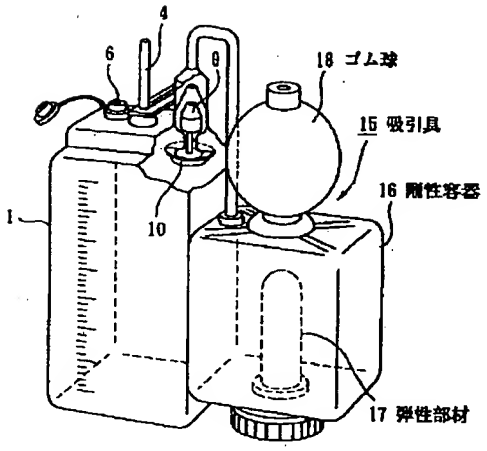
【符号の説明】

１　容器本体
２　吸引口
４　排液口
６　取出口
８　一方弁
９　芯状体弁
１０　フランジ状弁
１２　保持部
Ｐ　吸引手段

【図1】


(a)
3 開閉手段
4 排液口
5 キャップ
6 取出口
14 連結チューブ
2 吸引口
8 一方弁
9 芯状体弁
12 保持部
7 吸引口内側
10 フランジ状弁
1 容器本体
(b)
2
3
4
5
6
8
9
12
10
1
P

【図2】


4
6
9
18 ゴム球
15 吸引具
16 剛性容器
1
10
17 弾性部材